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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,826	10/20/2004	Hiroshi Uehara	018765-184	8838

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EXAMINER	
CHOI, LING SIU	
ART UNIT	**PAPER NUMBER**
1713	

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/511,826	UEHARA ET AL.	
	Examiner	Art Unit	
	Ling-Siu Choi	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11 and 13-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11 and 13-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/7/06, 5/3/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Amendment filed May 3, 2006. Claims 1-10 and 12 were canceled and claims 11 and 13-21 are now pending. In view of the Amendment and the recently submitted IDS, the claim rejections are maintained and new rejections are made. Rejection of claims 16-21 under 35 U.S.C. 103(a) as being unpatentable over Manabu et al. (JP 08-176343) were withdrawn because the composition comprising 0.1-5 parts by weight of metallic hydroxide, which falls off the claimed amount.

Claim Analysis

2. Summary of Claim 11:

<table>
<tr><td colspan="4">A thermoplastic resin composition (Y) comprising</td></tr>
<tr><td rowspan="3">A</td><td rowspan="3">20-64.9 wt%</td><td rowspan="3">ethylene copolymer</td><td>(A-1) <u>ethylene/α-olefin copolymer</u> comprising ethylene and C_{3-10} α-olefin</td></tr>
<tr><td>(A-2) ethylene polymer other than A-1</td></tr>
<tr><td>weight ratio of (A-1)/(A-2) = 20/80 to 100/0</td></tr>
<tr><td>B</td><td>35-70 wt%</td><td colspan="2">metal hydroxide</td></tr>
<tr><td>C</td><td>0.1-30 wt%</td><td colspan="2"><u>graft-modified ethylene polymer</u></td></tr>
<tr><td colspan="4">wherein the <u>ethylene/α-olefin copolymer (A-1)</u> has the following properties:
density = 857- 890 kg/m^3 melt flow rate (MF_2) = 0.1-100 g/10 min Mw/Mn =1.5-3.5</td></tr>
<tr><td colspan="4">the <u>graft-modified ethylene polymer (C)</u> is an ethylene/ C_{3-10} α-olefin copolymer graft-modified with unsaturated carboxylic acid or a derivative thereof in 0.01-10 wt%,
the ethylene/ C_{3-10} α-olefin copolymer having the following properties:
density = 857- 890 kg/m^3 melt flow rate (MF_2) = 0.1-20 g/10 min Mw/Mn =1.5-3.5</td></tr>
</table>

Summary of Claim 16:

A polymer composition(Z) comprising		
AA	100 parts by weight	at least one thermoplastic polymer (aa1) or at least one thermosetting polymer (aa2)
BB	50-250 parts by weight	a metal hydroxide
E	0.1-40 parts by weight	a triazine ring containing compound
F	0.1-40 parts by weight	a polyhydric alcohol

Claim Rejections - 35 USC § 102

3. **The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:**

> **A person shall be entitled to a patent unless –**
> **(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.**

4. Claims 11 and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Bieser et al. (US 6,214,924 B1).

Bieser et al. disclose a polyethylene composition comprising (A) from about 5 weight percent to about 70 weight percent of at least one homogeneous ethylene/α-olefin interpolymer having: (i) a density from about 0.85 g/cm^3 to about 0.92 g/cm^3, (ii) a molecular weight distribution (Mw /Mn) of less than about 3.5, (iii) a melt index (I_2) of from about 0.1 grams/10 minutes to about 175 grams/10 minutes, (iv) a CDBI of greater than about 50 percent; (B) from 30 weight percent to 95 weight percent of at least one

filler; and (C) from 0.1 weight percent to less than 10 weight percent of at least one functionalized polyethylene, wherein the filler can be magnesium hydroxide; the functionalized polyethylene can be a polyethylene grafted with maleic anhydride which has density of 0.871 g/cm^3 and melt index of 0.4 g/10 min (col. 8, line 26; col. 9, lines 3-13; Table-Material J; Claim 1). Thus, the present claims are anticipated by the disclosure of Bieser et al.

Claim Rejections - 35 USC § 103

5. **The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

> **(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.**

6. Claims 11 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al. (US 6,232,377 B1).

Hayashi et al. disclose a composition comprising (A) about 50-95 wt% of at least one ethylene copolymer, (B) about 5-50 wt% of an ethylene/α-olefin copolymer, (C) about 2-50 parts by weight of a polyethylene modified with a functional group containing compound, (D) about 5-250 parts by weight of a metal hydroxidde, (E) about 1-12 parts by weight of a triazine ring containing compound, and (F) about 0.5-5 parts by weight of a flame retardant compound, wherein the amounts of (C) -(F) are based on 100 parts

by weight of component (A) and component (B) combined and wherein the ethylene/α-olefin copolymer has a melt flow rate of about 0.5-50 g/10 min; a density of 0.860-0.935 g/cm^3; and a Mw/Mn of up to about 3 (col. 5, lines 6-24; col. 6, lines 42-65; claim 1).

The difference between the present claims and the disclosure of Hayashi et al. is the requirement of a polyethylene having specific properties to be modified with a functional group containing compound.

Hayashi et al. further disclose that the modified polyethylene has a melt flow rate in the range of about 0.1-50 g/10 min and a density in the range of 0.860 to 0.950 g/cm^3 (col. 5, lines 63-67). Attention is also directed to lines 5-7 of column 10, wherein component C is maleic anhydride modified ethylene/1-hexene copolymer and has a melt flow rate of 1.0 g/10 min and 0.4 % by weight of maleic anhydride. Hayashi et al. further disclose that "[g]enerally, any polyethylene resin can be used in the modification, e.g., ..., and ethylene/α-olefin copolymers polymerized by using **single site catalyst**" (col. 5, lines 25-32), which implies that the ethylene/α-olefin copolymers would have narrow molecular weight distribution. A conclusion can then be drawn that Hayashi et al. do fairly suggest that the polyethylene having the claimed properties would be modified with a functional group containing compound. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a polyethylene having the claimed properties for modification and thereby obtain the present invention.

7. Claims 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kensho et al. (JP 09-221567).

Kensho et al. disclose a composition comprising polyolefin resin, 1-30 wt% polyammonium phosphate compound (A), 0.1-30 wt% amine phosphate (B), 0.1-30 wt% nitrogenous compound (C), and 0.1-20 wt% of polyhydric alcohol (D), wherein the total amount of components A, B, C, and D is 10-50 wt% based on the entire composition (abstract; [0019],[0035]). Kensho et al. further disclose that a metal hydroxide can be added into the composition ([0038]).

The difference between the present claims and the disclosure of Kensho et al. is the requirement of the specific amount of metal hydroxide to be used in the present invention.

It is noted that metal hydroxide is attributed to the flame retardant properties of the composition in which the metal hydroxide has been added. The case law held that "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." ***In re Antonie***, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to achieve the claimed amount of the metal hydroxide by the routine optimization and thereby obtain the present invention.

Response to the Applicants' Arguments

8. Applicants' arguments filed May 3, 2006 have been fully considered but they are not deemed to be persuasive.

Applicants: "a review of the data in Table 3 on page 36 of the specification shows that the compositions of Examples **YI-1, Y1-2 and Y2**, which contain a graft copolymer made using an ethylene/1-butene copolymer having a density, melt flow rate and Mw/Mn index within the scope of claim 11, unexpectedly has a higher break strength and elongation at break than the compositions of **Comparative Examples Y2-1 and Y2-2**, where the backbone polymer is a polymer is a polyethylene having a density outside the range of the present claims. These results could not have been predicted from the disclosure of Hayashi et al'377."

In view of Table 3, the densities for Y2-1 and Y2-2 are not given. Furthermore, Hayashi et al. do disclose that the ethylene/α-olefin has density of 0.8860-0.935 which falls into the claimed range for density.

Applicants: "As described at page 4, lines 17-27 and, at page 5, lines 6-10 of the specification, polyphosphoric acid absorbs water and gradually reduces electrical resistance due to water absorption and thus is not suitable as an insulating covering material for electric wire/cable, etc.....Thus, the present invention provides compositions which are not disclosed or suggested in.....JP'567."

It is noted that the present claims do not exclude the incorporation of phosphorous-based flame retardant.

Applicants:"the data in Table 4 on page 39 of the specification shows unexpected results. Thus, Z2 which satisfies the constitution of present claim 16, when compared

with Comparative Example Z7 to which zinc borate is added instead of pentaerythritol.....Example **Z2** is sperior to that of Comparative Example **Z7** in virtical flame test.....Example Z5 containing **smaller amounts of flame retardant** with Comparative Examples Z9, Z10 and Z11 **containing higher amounts of flame retardant**, it is apparent that Example **Z5** is superior to Comparative Examples **Z9, Z10 and Z11** in the vertical flame test."

Kensho et al. (JP 09-221567) do disclose a composition comprising polyhydric alcohol. And the present claims do not exclude the phosphorous flame retardant.

Conclusion

9. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on March 7, 2006 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.

LING-SUI CHOI
PRIMARY EXAMINER

August 3, 2006